Guidelines for B.Tech. Project Reports

http://www.griet.in/ece/projects/btechguidelines.pdf
http://www.griet.in/ece/projects/btechtemplates.pdf

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated to Jawaharlal Nehru Technological University)

HYDERABAD 500 090

Guidelines for BTech Project Reports

Abstract

This document gives a set of guidelines on the format of the B.Tech. project report. Its purpose is to help you prepare and turn in a professional document. These guidelines include complete descriptions of the organization, general considerations and the submission of the report.

1. Introduction

It is recommended that you meet your guide regularly during the course of the project, and maintain a record of your discussions with your Guide, and of literature survey details, derivations etc. Such a system will allow easy and quick access to the details and chronology of your work. The final responsibility for producing an error-free report lies with you, and not your Guide!

Please read the guidelines carefully and make sure your project report strictly conforms to specifications. What you are writing is a professional document. "Keep it so simple" (KISS). In general keep in mind the maxim "Simplicity is the mother of beauty".

A pdf file of sample sheets is also available (http://www.griet.in/ece/projects/btechtemplates.pdf), which you can use as a template to prepare your project report.

2. Organization

The project report must be organized as follows. Seek clarification where necessary.

2.1. Top cover. Title of project, name(s) of all student(s) in the team (without Roll Numbers), GRIET emblem(?), Department name, Institute's name and affiliation, and year of graduation. The report is to be hard bound, cloth covered in the color black. See Exhibit 1.

On the spine of the binding the following should be printed or embossed:

B.Tech. Project Student's name Year

2.2. Title page. Black & white only on regular paper. See Exhibit 2.

2.3. Certificate. Black & white only from the ECE Department. This is page number (i), the beginning of the small case Roman numeral page numbers. The certificate will be signed by the Faculty Advisor(s) before the viva-voce after verifying the format and by the Head of the Department after review with the Advisor(s) at a later date. See Exhibit 3.

2.4. Acknowledgements. This is page (ii). Thank your Supervisor(s), lab staff and anyone else who has been helpful in the Project. Keep this brief and avoid syrupy language like "We want to thank our beloved …" This page must be signed by all the members of the Project group. See Exhibit 4.

2.5. Abstract and **Keywords.** This is page (iii). See Exhibit 5. The abstract (about 150 words) should contain the context/relevance of the problem at hand, a description of what was done and a gist of the significant observations/results.

The keywords (maximum 6) are a hint at what is contained in the report.

2.6. Contents. The table of Contents should be titled just Contents (not Table of Contents). Starts on page (iv). Include above items, titles of all chapters, bibliography, appendices, drawings, program listings and CD ROMs. The table of contents gives a bird's eye view. Try to fit it into one or two pages. See Exhibit 6.

2.7. List of Figures and **List of Tables.** on separate pages. Each list should give, in tabular form, the figure or table number, its title/caption and its page number.

2.8. Nomenclature and Abbreviations. All symbols that appear in the report should be listed alphabetically. First give all Roman symbols, then Greek symbols.

Subscripts and superscripts should be listed separately if these are not an intrinsic part of the variable name. Example: for a symbol such as V_{ai} where i refers to a running index (identifying, for instance, a particular location or time), enter V_a as a symbol (treating a as an intrinsic part of the symbol) and enter i in the list of subscripts. Also k_{px} should follow k_p.

Note the ordering sequence: (1) Upper case symbols followed by lower case ones, (2) Unscripted variables preceding superscripted and subscripted ones, (3) Superscripted variables followed by subscripted ones.

2.9. List of Acronyms and Standards.

2.10. The Chapters. Each chapter should begin with an Introduction and end with a Conclusion (a summing up) and, where applicable, a lead-in to the next chapter. The page on which chapter 1 starts is page 1.

One chapter should follow immediately after another. Do not use an intervening blank or title page between chapters.

The **chapter** title is the first-order heading. A chapter may be divided into **sections** each of which has a section title (second-order heading). For example, in Chapter 3, the sections will be numbered 3.1, 3.2, etc. If at all possible do not further subdivide a section.

Use **subsections** (third-order headings) only if unavoidable. For instance, in section 3.2, the subsections will be numbered 3.2.1, 3.2.2, etc. Do not further subdivide beyond this point. For example, subsection 3.2.2 may *not* be further divided into sub-subsections 3.2.2.1, 3.2.2.2 etc.

See Exhibits 11-12 for examples of chapter organization.

2.11. Bibliography Number all the references. Use a chronological bibliography. Each listed reference in the bibliography must be cited in the text of the report. See Exhibits 13-14.

- For a book give the name(s) of author(s), title of book, edition, chapter number, and page numbers, publisher, location and year of publication. Example:

  [25] Jones, C.D., A.B. Smith, and E.F. Roberts, *Efficient Real-Time Fine-Grained Concurrency*, 2nd Ed., Ch. 3, pp. 145-7, Tata McGraw-Hill, New Delhi, 1994.
- For a journal/conference paper, give the name(s) of authors, title of paper, name of journal/ conference, volume and issue number (for journal), page numbers, and month and year of publication. Example:

  [23] Prasad, A.B., Kumar, C.D., Jones, E.F., and Frost, P.: "Cable Television Broadband Architectures", *IEEE Comm. Magazine*, vol. 39, pp. 134-141, June 1991.
- For a World Wide Web page, give the author or company's name and the URL.

2.12. Appendices. Number the Appendices A, B, etc. Figures, tables and equations in an appendix are numbered as in the case of a chapter with the appendix letter taking the place of the chapter number. Examples: Figure A.2, Table B.3, Equation C.1. See Exhibit 15.

3. General considerations

3.1. Number of pages, font, spacing, color. Keep the total number of pages (of the chapters) between 30 and 50, not exceeding 50 in any case. This does not include the page count of the appendices.

With regard to the text please note:

- **Margins** All text, drawings, tables, etc., must be positioned on an A4 sheet with 1 in. margin on the top, bottom and right side and 1½ in. margin on the left side.
- Pages should be **numbered** at bottom center (including pages that contain only figures or tables).
- **Font** style and size: Times New Roman, 12 pt.
- For font size of chapter, section and subsection **headings** see Exhibit 5.
- Line **Spacing**: single
- **Typing**: Back to back
- **Color**: Black on white

3.2. Figures and Tables. Each sketch, drawing, graph and photograph should have a figure number and title below the figure etc. Numbering should be sequential, chapter wise. For instance, if there are 24 figures chapter 3 spread over all of its sections the figure numbers run from Figure 3.1 through Figure 3.24. In figures experimental data should typically be represented by centered symbols, and theoretical data by continuous curves.

Each table should have a table number and caption above the table. Numbering should be sequential, chapter wise, as in the case of Figure numbers. For instance, if there are 18 tables in chapter 3 the table numbers run from Figure 3.1 through Figure 3.18.

Make sure that figures and tables are complete in other respects such as legends, references (if any) and coordinate labels with units. Each figure and table must be explicitly referred to in the text and located where its first reference occurs, preferably *after* the reference.

3.3. Drawings.

- All engineering drawings must conform to relevant Standards and should include a title block.
- If drawings are large they should be included at the back of the report in a separate pocket.
- In case drawings are made using CAD packages, a CD ROM should be included which contains all the files and details of the packages used.

3.4. Equations. The numbering of equations should be sequential, chapter wise. Numbered equations must be explicitly referred to in the text.

3.5. SI. Make sure proper units, SI as far as possible, appear wherever required.

3.6. Readability. In general it will help to have someone else read your report and critique it. Make a checklist of their questions and comments and resolve each one.

- The report must be complete, error free and referable. All references, figures, tables, equations, etc. which are referenced in the text should be locatable in the report with the specified number or reference. Conversely, all references, figures, tables, equations, etc. must be cross-referenced in the text.
- Use of spelling and grammar software is strongly recommended. "Spell-check" cannot identify correctly spelt words in the wrong context. For example, typing "he" in place of "the" may alter the meaning of the sentence but the spell-check will not indicate this.
- Except for acronyms do *not* use ALL CAPITALS.
- Do *not* use underlining.
- Use *italics* for emphasis or if the phrase is non-English.

3.7. Program listings. All computer programs developed should be presented in the report in the following manner:

- Source code listing with complete coding.
- A CD ROM with program source code, executable files, and data files etc.
- User's manual giving details of how to use the programs [including flow charts] and the system requirements to be bound with the Project Report.

4. Submitting the Report

For the purpose of the viva voce exam, plan on one hard copy each for the students and Faculty Guide(s). All hard copies must be identical from cover to cover. You should be prepared to exchange, with the Guide(s), drafts in both hard- and electronic copy form before you defend your thesis. Please follow these steps:

- Submit the draft according to schedule.
- Make corrections, revisions and extensions as suggested by the University Examiner before turning in Department's electronic copy.

For the purpose of archiving the Department requires and will accept only an electronic copy of the project report. This electronic version should be a superset of the hard copy *and* any electronic media submitted at the time of the viva voce including any revision and extension as a result of it.

Exhibit 1: Top Cover Sample

NONLINEAR STOCHASTIC DECONTROL OF NETWORK CONGESTION (18, TNR)

B.Tech. Project Report (16)

A. B. Chaitanya
Vinay Premchand
Max N. Well (18)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING (18)

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY (18, Bold)
(Affiliated to Jawaharlal Nehru Technological University) (14, Bold)

HYDERABAD 500 090 (18, Bold)

2010 (18, Bold)

Exhibit 2: Title Page Sample

NONLINEAR STOCHASTIC DECONTROL OF NETWORK CONGESTION (18, TNR)

Project Report Submitted in Partial Fulfillment of the Requirements for the Degree of (14)

Bachelor of Technology (16)
in (16)
Electronics and Communication Engineering (16)
by (16)

A. B. Chaitanya (Roll No. 06241A04AA)
Vinay Premchand (Roll No. 06241A04BB)
Max N. Well (Roll No. 06241A04CC) (18)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING (18)

GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY (18)
(Affiliated to Jawaharlal Nehru Technological University) (14)

HYDERABAD 500 090 (18)

2010 (18)

Exhibit 3: Certificate Sample

Department of Electronics and Communication Engineering (16)

Gokaraju Rangaraju Institute of Engineering and Technology (16)
(Affiliated to Jawaharlal Nehru Technological University) (12)

Hyderabad 500 090 (16)

2010 (16)

Certificate

This is to certify that this project report entitled *Nonlinear Stochastic Decontrol of Network Congestion* by A. B. Chaitanya (Roll No. 06241A04AA), Vinay Premchand (Roll No. 06241A04BB) and Max N. Well (Roll No. 06241A04CC), submitted in partial fulfillment of the requirements for the degree of Bachelor of Technology in Electronics and Communication Engineering of the Jawaharlal Nehru Technological University, Hyderabad, during the academic year 2009-10, is a bonafide record of work carried out under our guidance and supervision.

The results embodied in this report have not been submitted to any other University or Institution for the award of any degree or diploma.

(Guide)	(External Examiner)	(Head of Department)
C. T. Misra		Ravi Billa
Assistant Professor		

Exhibit 4: Acknowledgment Sample

ACKNOWLEDGMENT

[To Project Guides(s)] It is a pleasure to express thanks to Mr. C. T. Misra for the encouragement and guidance throughout the course of this project.

[To all others (if any), such as individuals and organizations who were instrumental in the completion of your project]

A. B. Chaitanya _____

Vinay Premchand _____

Max N. Well _____

Exhibit 5: Abstract

Abstract

Keywords: nonlinear, stochastic, decontrol, congestion

Exhibit 6: Contents

CONTENTS (18, TNR)

Abstract (14,TNR) i

List of Figures ii

List of Tables iii

1 Introduction (14, TNR) 1
- 1.1 Background 1 (12, TNR)
- 1.2 Aim of this Project 1
- 1.3 Methodology 2
- 1.4 Significance of this Work 3
- 1.5 Outline 4
- 1.6 Conclusion 4

2 Literature … 6
- 2.1 Background 6
- 2.2 Aim of this Project 7
- 2.3 Methodology 8

3 Etc. 9
- 1.1 Background 9
- 1.2 Aim of this Project 10
- 1.3 Methodology 20
- 1.4 Significance of this Work 22

4 Etc. … 24
- 2.1 Background 24
- 2.2 Aim of this Project 29
- 2.3 Methodology 32

5 (Title of Chapter 5) 34

6 (Title of Chapter 6) 45

7 (Title of Chapter 7) 50

Bibliography 50

A Elementary Queueing Theory 52

B Etc. 55

Exhibit 11: Arrangement of Chapter 1
Chapter 1 is the Introduction. Arrange the first page as follows.

Chapter 1 (16 bold)
INTRODUCTION (16 bold, caps)

Leave 1½" space from the top edge and 2 or 3 blank lines after the chapter title. Number this page as page 1. The chapter may be organized as below.

1.1 Background

The size of the heading is 14-point boldface, initially capitalized, flush left, with one blank line before, and one after. The remaining text (as in this paragraph) is 12-point, single-spaced. Do *not* use double-spacing.

All paragraphs should be indented as is this one. Be sure your text is fully justified—that is, flush left and flush right. Please do not place any additional blank lines between paragraphs.

This is an introductory section and should include a brief about the scope of work.

1.2 Aim of this Project

Define the objectives.

1.3 Methodology

Technical approach to the problem.

1.3.1 Sub-methodology. This is a third order heading (discouraged), size 12-point, boldface, initially capitalized, flush left, preceded by one blank line, followed by a period and your text on the same line.

1.4 Significance of this Work

Importance and application areas.

1.5 Outline of this Report

Chapter wise.

1.6 Conclusion

A brief about chapter 1.

Exhibit 12: Arrangement of Chapters 2 through the last

Chapter 2
LITERATURE REVIEW

Review literature related to the topic of work (mention all work done earlier at GRIET besides other references). Present the problem, methodology used, and general outline of solution.

Chapter 3
TITLE

The students' contribution. Work done covering analytical modeling, employment of software package[s] and other computational algorithms, hardware/equipment design, simulation, experimental verification, hardware/equipment fabrication and any other aspect of the work you decide to mention should be given in this and subsequent chapters.

- Include detailed component drawings and PCB layout, if any.
- Give detailed algorithms and flow charts, programs, code, detailed comments, etc.

Chapter …
TITLE

The students' contribution, continued.

Chapter Last
TITLE

Discuss results, applications, future scope and conclusions/concluding remarks.

CHRONOLOGICAL BIBLIOGRAPHY (16 bold, caps)

Leave 1½" space from the top edge and 2 or 3 blank lines after the title. Page numbering is a continuation of preceding material.

…

[23] Prasad, A.B., Kumar, C.D., Jones, E.F., and Frost, P.: "Cable Television Broadband Architectures", *IEEE Comm. Magazine*, vol. 39, pp. 134-141, June 1991.

[24] Dutta-Roy, A.: "An Overview of Cable Modem Technology Perspectives", *IEEE Computer Magazine*, vol. 25, pp. 44-54, Sept. 1992.

[25] Dean, A.K., *Efficient Real-Time Fine-Grained Concurrency,* 3rd Ed., Ch. 3, pp. 145-7, Tata McGraw-Hill, New Delhi, 1994.

[26] Mayhew, L., and Krishnan, M.: "PCI Express and Advanced Switching in Interconnects", *Proc. 11th Symp. on High Perf. Interconnects* IEEE, pp. 21-29, Aug. 2003.

[27] …

****

Usage Author's last name (if only one author), or both authors' last names (if only two authors) or the first author's last name followed by *et al* which means "and others". The references are listed in chronological order and in alphabetical order for each year. The following example illustrates how items in the above short bibliography are cited in the text of the report:

> … For more information on fine grained concurrency, see Prasad et al [23]. The combination of PCI and interconnects is examined in Mayhew and Krishnan [26]; see also [25]. …

Note that if the reference is to a book rather than a journal article, the publisher's name and place must be included (for example, Tata McGraw-Hill, New Delhi).

ALPHABETICAL BIBLIOGRAPHY (16 bold, caps)

Leave 1½" space from the top edge and 2 or 3 blank lines after the title. Page numbering is a continuation of preceding material.

…

Dean, A.K., *Efficient Real-Time Fine-Grained Concurrency, 3rd ed.* New Delhi: Tata McGraw-Hill, 1994.

Dutta-Roy, A.: "An Overview of Cable Modem Technology Perspectives", *IEEE Computer Magazine*, vol. 25, pp. 44-54, Sept. 1992.

Mayhew, L., and Krishnan, M.: "PCI Express and Advanced Switching in Interconnects", *Proc. 11th Symp. on High Perf. Interconnects* IEEE, pp. 21-29, Aug. 2003.

Prasad, A.B., Kumar, C.D., Jones, E.F., and Frost, P.: "Cable Television Broadband Architectures", *IEEE Comm. Magazine*, vol. 39, pp. 134-141, June 1991.

…

****

Usage Author's last name (if only one author), or both authors' last names (if only two authors) or the first author's last name followed by *et al* which means "and others". The references are listed in alphabetical order of the author's last name. The following example illustrates how items in the above short bibliography are cited in the text of the report:

> … For more information on fine grained broad-banding, see (Dean, 1994; Prasad et al., 1991). The combination of PCI and interconnects is examined in Mayhew and Krishnan (2003). …

Note that if the reference is to a book rather than a journal article, the publisher's name and place must be included (for example, Tata McGraw-Hill, New Delhi).

Exhibit 15: Arrangement of an Appendix

Appendix A (16 bold)
ELEMENTARY QUEUEING THEORY (16 bold, caps)

Leave 1½" space from the top edge and 2 or 3 blank lines after the appendix title. Page numbering is a continuation of preceding material. The appendix is organized exactly like chapter.

A.1 Important theorems

The size of the heading is 14-point boldface, initially capitalized, flush left, with one blank line before, and one after. The remaining text (as in this paragraph) is 12-point, single-spaced. Do *not* use double-spacing.

All paragraphs should be indented as is this one. Be sure your text is fully justified—that is, flush left and flush right. Please do not place any additional blank lines between paragraphs.

A.2 Derivation of Theorem 2

…